

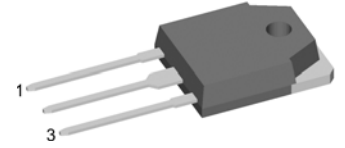
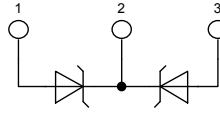
# Schottky Diode Gen<sup>2</sup>

High Performance Schottky Diode  
Low Loss and Soft Recovery  
Common Cathode

$V_{RRM} = 150\text{ V}$   
 $I_{FAV} = 2 \times 60\text{ A}$   
 $V_F = 0.80\text{ V}$

Part number

**DSA 120 C 150 QB**



Backside: cathode

### Features / Advantages:

- Very low  $V_f$
- Extremely low switching losses
- low  $I_{rm}$  values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

### Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

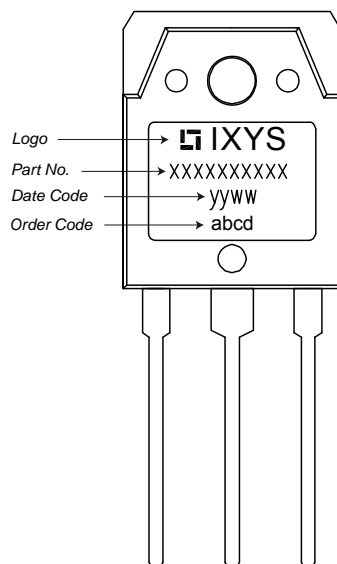
### Package:

- Housing: TO-3P
- Industry standard outline compatible with TO-247
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
$V_{RRM}$	max. repetitive reverse voltage				150	V
$I_R$	reverse current	$V_R = 150\text{ V}$			1.8	mA
		$V_R = 150\text{ V}$			5	mA
$V_F$	forward voltage	$I_F = 60\text{ A}$			0.93	V
		$I_F = 120\text{ A}$			1.13	V
		$I_F = 60\text{ A}$			0.80	V
		$I_F = 120\text{ A}$			1.03	V
$I_{FAV}$	average forward current	rectangular d = 0.5			60	A
$V_{F0}$	threshold voltage	} for power loss calculation only			0.51	V
$r_F$	slope resistance				3.9	mΩ
$R_{thJC}$	thermal resistance junction to case				0.40	K/W
$T_{VJ}$	virtual junction temperature		-55		175	°C
$P_{tot}$	total power dissipation				375	W
$I_{FSM}$	max. forward surge current	t = 10 ms (50 Hz), sine			600	A
$C_J$	junction capacitance	$V_R = 24\text{ V}$ ; f = 1 MHz		481		pF

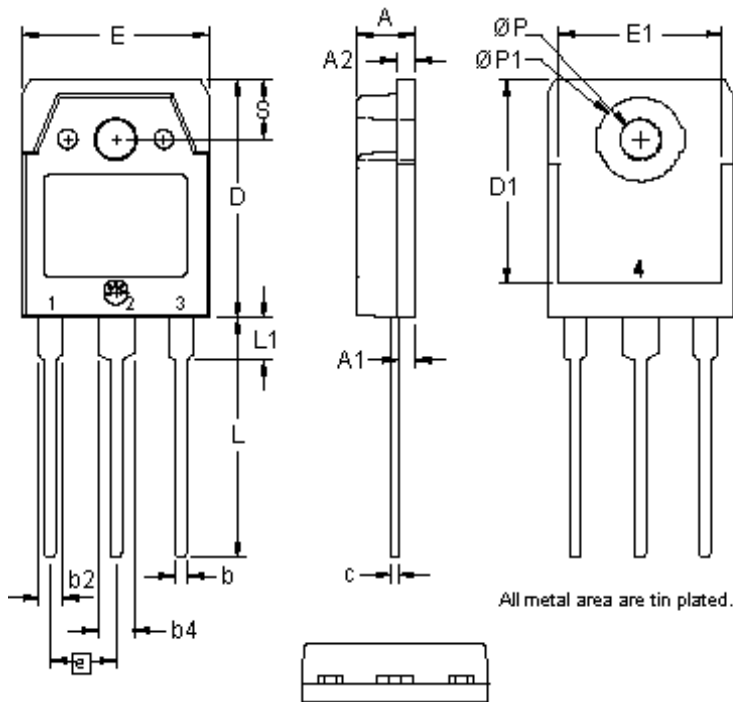
Symbol	Definition	Conditions	Ratings			Unit
			min.	typ.	max.	
$I_{RMS}$	RMS current	per pin <sup>1)</sup>			70	A
$R_{thCH}$	thermal resistance case to heatsink			0.25		K/W
$T_{stg}$	storage temperature		-55		150	°C
<b>Weight</b>				5		g
$M_D$	mounting torque		0.8		1.2	Nm
$F_C$	mounting force with clip		20		120	N

<sup>1)</sup>  $I_{RMS}$  is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.  
 In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

**Product Marking**

**Part number**

- D = Diode
- S = Schottky Diode
- A = low VF
- 120 = Current Rating [A]
- C = Common Cathode
- 150 = Reverse Voltage [V]
- QB = TO-3P (3)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DSA 120 C 150 QB	DSA120C150QB	Tube	30	501788

**Outlines TO-3P**


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.193	4.70	4.90
A1	.051	.059	1.30	1.50
A2	.057	.065	1.45	1.65
b	.035	.045	.090	1.15
b2	.075	.087	1.90	2.20
b4	.114	.126	2.90	3.20
c	.022	.031	.055	.080
D	.780	.791	19.80	20.10
D1	.665	.677	16.90	17.20
E	.610	.622	15.50	15.80
E1	.531	.539	13.50	13.70
e	.215 BSC		.545 BSC	
L	.779	.795	19.80	20.20
L1	.134	.142	3.40	3.60
ØP	.126	.134	3.20	3.40
ØP1	.272	.280	6.90	7.10
S	.193	.201	4.90	5.10

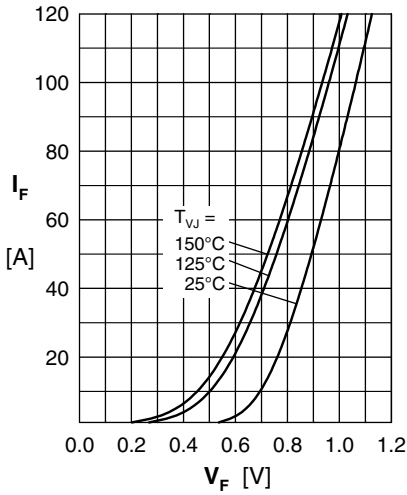


Fig. 1 Maximum forward voltage drop characteristics

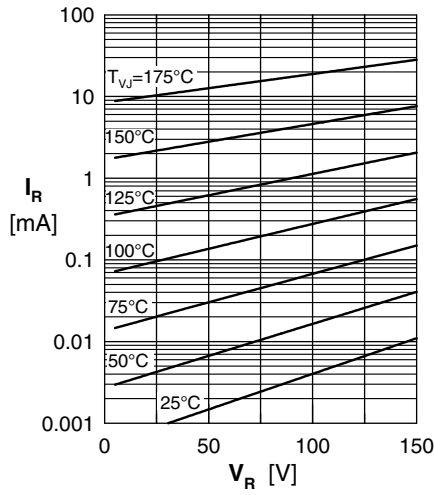


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

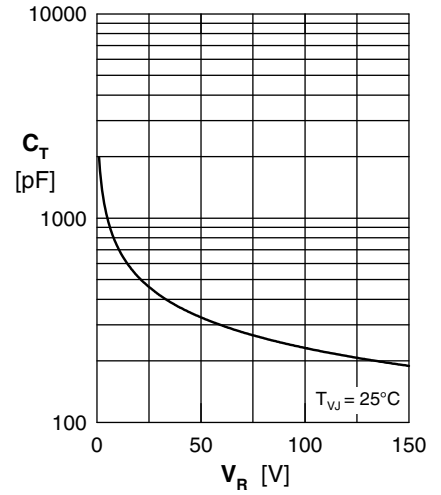


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

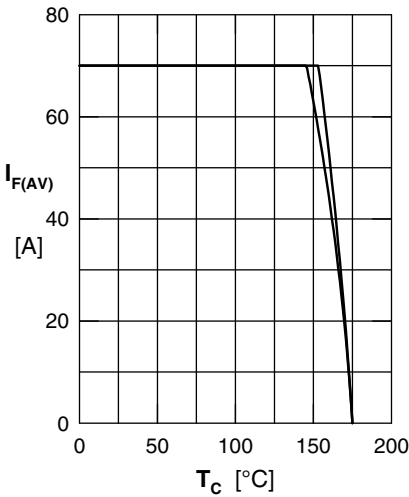


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temperature  $T_C$

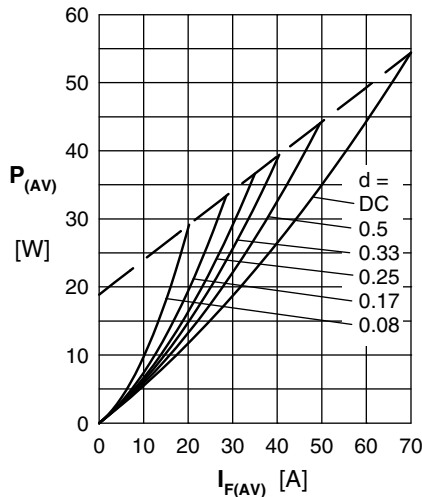


Fig. 5 Forward power loss characteristics

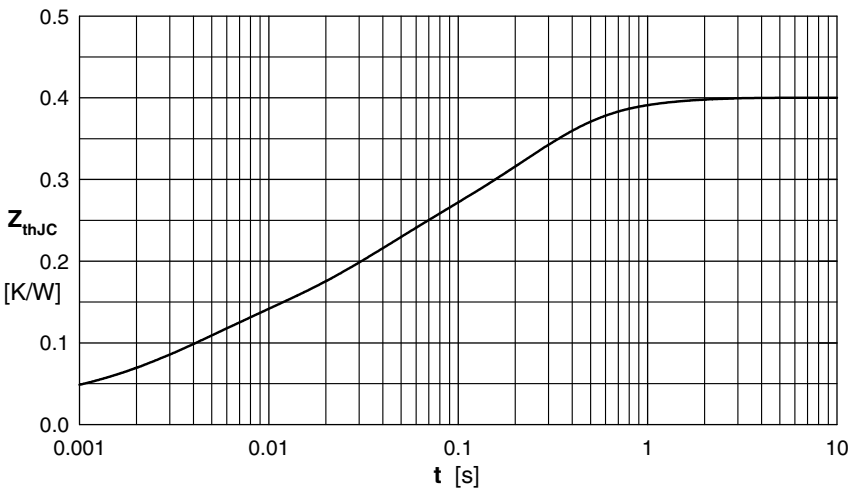


Fig. 6 Transient thermal impedance junction to case at various duty cycles

$R_{thi}$	$t_i$
0.022	0.0002
0.082	0.0032
0.104	0.026
0.165	0.208
0.027	0.79

Note: All curves are per diode